

the Arkansas River at Fort Smith, Ark., on the 20th and 21st, and a rise of about one and one-half foot at Little Rock, Ark., from the 23d to 25th. On the 2d the Arkansas River fell below the danger-line at Fort Smith and Little Rock, Ark. On the 6th the water was rising between the Mississippi River and Bayou Teche. On the 15th the Red River fell below the danger-line at Shreveport, La., and on the 15th and 16th there was a slight rise in the Mississippi River at New Orleans, La. On the 31st the Mississippi River at Vicksburg, Miss., was 41.4 feet, and 0.4 foot above the danger-line, and at New Orleans, La., the stage of the water was 13.8 feet, and 0.8 foot above the danger-line. Most of the country from Bayou Sara to the mouth of the Red River, Pointe Coupee parish, Louisiana, was under water, and from the mouth of the Red River to within twelve miles of Monroe, Ouachita parish, La., a distance of over two hundred miles, the country had been inundated for nearly three months, and from the Red River up the Black River, for a distance of eighty miles, much of the land was under water at the close of month.

Disastrous floods, resulting from heavy rain, were reported in Ontario, Canada, on the 5th. On the 6th the Brazos River, Texas, was overflowing its banks and rising. On the 15th heavy rain caused the inundation of bottom lands in the vicinity of Camp Peña Colorado, Tex. Reports of the 20th state that rivers and streams in central New York and northeastern Pennsylvania overflowed their banks, flooding streets in towns and villages, submerging the tracks and causing washouts on railroads, and delaying farming operations. The Willamette River, Oregon, rose steadily from the 10th, and on the 16th, 17th, and 18th the water attained a stage of twenty feet on the gauge at Portland, flooding the lower docks. On the 26th high water was reported in the upper Potomac river and its tributaries, and in many places the streams overflowed their banks. A cablegram to the "New York Herald," dated the 29th, stated that railroad communication had been interrupted and villages inundated in Cuba by excessive rains. Reports of the 31st stated that the lowlands along Kings River, Fresno Co., Cal., were flooded, and that bridges were carried away, stock drowned, and crops destroyed. In Tulare county, California, Tulare Lake extended five miles over the surrounding country, causing much damage. In Scott county, Iowa, the heavy rains of the month caused floods which carried away

bridges, devastated farms, and washed out highways. The report of the Nevada state weather service states that streams in that state overflowed as the result of melting of snow in the mountains. The Carson River was out of its banks the last fifteen days of the month, causing considerable damage.

STAGE OF WATER IN RIVERS AND HARBORS.

The following table shows the danger-points at the several stations; the highest and lowest water during May, 1890, with the dates of occurrence and the monthly ranges:

Heights of rivers above low-water mark, May, 1890 (in feet and tenths).

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River:</i>						
Shreveport, La.	29.9	8	34.6	31	23.8	10.8
<i>Arkansas River:</i>						
Fort Smith, Ark.	22.0	1	16.6	28	5.3	11.3
Little Rock, Ark.	23.0	1	23.7	30	9.3	14.4
<i>Missouri River:</i>						
Ft. Buford, N. Dak.		31	8.5	1	1.3	7.2
Sioux City, Iowa.		27	9.7	17	6.4	3.3
Omaha, Neb.	18.0	29	9.0	20, 21	6.5	2.5
Kansas City, Mo.	21.0	28	10.0	15, 16	6.4	3.6
<i>Mississippi River:</i>						
Saint Paul, Minn.	14.5	31	3.6	17, 18, 19	2.7	0.9
La Crosse, Wis.	24.0	1	7.0	17	4.2	2.8
Dubuque, Iowa.	16.0	1	10.0	22	4.9	5.1
Davenport, Iowa.	15.0	1	8.0	22	3.7	4.3
Keokuk, Iowa.	14.0	1	8.3	30, 31	4.0	4.3
Saint Louis, Mo.	32.0	1	18.3	23	11.8	6.5
Cairo, Ill.	40.0	1	36.7	11, 12	28.5	8.2
Memphis, Tenn.	34.0	4	29.3	21	22.8	6.5
Vicksburg, Miss.	41.0	1	48.5	31	41.4	7.1
New Orleans, La.	13.0	1	14.7	27	13.7	1.0
<i>Ohio River:</i>						
Pittsburgh, Pa.	22.0	24	22.0	4	6.3	15.7
Parkersburg, W. Va.	38.0	26	29.5	5	11.0	18.5
Cincinnati, Ohio.	50.0	30	41.3	6	24.2	17.1
Louisville, Ky.	25.0	25	16.4	1, 2, 6	10.2	6.2
<i>Cumberland River:</i>						
Nashville, Tenn.	40.0	25	28.2	6	14.0	14.2
<i>Tennessee River:</i>						
Chattanooga, Tenn.	33.0	22, 23	11.9	15	6.6	5.3
<i>Monongahela River:</i>						
Pittsburgh, Pa.	29.0	24	22.0	4	6.3	15.7
<i>Savannah River:</i>						
Augusta, Ga.	32.0	28	20.3	13, 14, 25, 26	7.0	13.3
<i>Willamette River:</i>						
Portland, Oregon.	15.0	20, 21	20.1	1	10.9	9.2

*On April 1st the zero of the gauge at Memphis, Tenn., was lowered one foot, and all stages of water reported for previous dates should have one foot deducted, for purposes of comparison.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Auroras were reported as follows: 7th, South Canisteo, N. Y. 11th, Carson and Wesley, Iowa. 20th, Ardenia and Number Four, N. Y. 31st, Greenwood, W. Va.

THUNDER-STORMS.

The more severe thunder-storms of the month are described under "Local storms." East of the Rocky Mountains thunder-storms were reported in the greatest number of states and territories, thirty, on the 4th; in twenty-eight on the 14th; in twenty-five on the 1st, 5th, 18th, 24th, and 25th; in from twenty to twenty-four, inclusive, on the 3d, 10th, 11th, 12th, 13th, 14th, 17th, 19th, 20th, 23d, 30th, and 31st; and in from ten to nineteen, inclusive, on the 2d, 6th to 9th, 15th, 16th, 21st, 22d, 26th to 30th. There were no states east of the Rocky Mountains in which thunder-storms were not reported, and there were no dates on which thunder-storms were reported in less than ten states.

East of the Rocky Mountains thunder-storms were reported on the greatest number of dates, thirty, in Texas; on twenty-six in Florida and New York; on from twenty to twenty-five, inclusive, in Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, North Carolina, Ohio, Pennsylvania, and Virginia; on from ten to twenty, inclusive, in Alabama, Arkansas, Georgia, Indian Territory, Kentucky, Louisiana, Maryland,

Massachusetts, Minnesota, Mississippi, New Jersey, South Carolina, South Dakota, Tennessee, West Virginia, and Wisconsin; on from one to nine, inclusive, in Connecticut, District of Columbia, Maine, Montana, New Hampshire, North Dakota, Rhode Island, and Vermont. West of the Rocky Mountains thunder-storms were reported as follows: Arizona, 28th; California, 4th, 6th, 10th, 24th, 26th, 27th, 28th, and 31st; Colorado, 2d, 3d, 8th, 9th, 10th, 12th, 13th, 16th, 20th, 22d, 23d, 27th to 30th; Idaho, 1st, 7th, 8th, 10th, and 31st; Nevada, 1st, 3d to 7th, 9th, 16th, 26th, 27th, 28th, and 30th; New Mexico, 1st to 5th, 9th to 13th, 21st, 23d, 24th, 29th, and 30th; Oregon, 5th, 6th, 7th, 9th, 10th, 25th, and 30th; Utah, 1st, 8th, and 30th; Washington, 7th, 8th, 19th, and 30th; Wyoming, 3d and 8th. There were no states or territories west of the Rocky Mountains in which thunder-storms were not reported.

On the 4th, when thunder-storms were most prevalent east of the Rocky Mountains, a low pressure storm moved from the middle Mississippi valley to western Pennsylvania; a low pressure area extended from New York to Texas, and thunder-storms were reported on the eastern slope of the Rocky Mountains and in all districts lying east of the Mississippi River. On the 14th, when thunder-storms occurred from the Rocky Mountains eastward, south of the Lake region, to the Atlantic coast, three low pressure storms appeared, one over the Saint Lawrence Valley, one over the Lake region, and one in the extreme northwest.